

SEQUENCE LISTING

<110> Summers, Anne O.
Caguiat, Jonathan

<120> Metal Binding Proteins, Recombinant Host Cells and
Methods

<130> 79-00

<140> unassigned
<141> 2001-10-12

<150> US 60/240,465
<151> 2000-10-12

<160> 18

<170> PatentIn Ver. 2.0

PER
#3

<210> 1
<211> 435
<212> DNA
<213> Shigella flexneri, Tn21 of Plasmid R100

<400> 1
atggaaaata atttggaaaa cctgaccatt ggcgttttg ccaaggcggc cggggtaaac 60
gtggagacaa tccgcttcta tcagcgcaag ggcctgtgc gggAACCGGA caagcttac 120
ggcagcatcc gccgctatgg ggaggcggac gtggttcggg tgaaattcgt gaaatcgcca 180
cagcggctgg ggtcagtct ggacgagatt gccgagctgt tgccgctcga cgatggcacc 240
caactgcgagg aggcagcagc cctggccgaa cacaagctca aggacgtgcg cgagaagatg 300
gccgacttgg cgccatgga aaccgtctg tctgaactcg tgtgcgcctg ccatgcacga 360
aaggggaaatg tttctgccc gttgatcgcg tcactacagg gcgaagcagg cctggcaagg 420
tcagctatgc cttag 435

<210> 2
<211> 144
<212> PRT
<213> Shigella flexneri, Tn21 of Plasmid R100

<400> 2
Met Glu Asn Asn Leu Glu Asn Leu Thr Ile Gly Val Phe Ala Lys Ala
1 5 10 15

Ala Gly Val Asn Val Glu Thr Ile Arg Phe Tyr Gln Arg Lys Gly Leu
20 25 30

Leu Arg Glu Pro Asp Lys Pro Tyr Gly Ser Ile Arg Arg Tyr Gly Glu
35 40 45

Ala Asp Val Val Arg Val Lys Phe Val Lys Ser Ala Gln Arg Leu Gly
50 55 60

Phe Ser Leu Asp Glu Ile Ala Glu Leu Leu Arg Leu Asp Asp Gly Thr
65 70 75 80

His Cys Glu Glu Ala Ser Ser Leu Ala Glu His Lys Leu Lys Asp Val
85 90 95

Arg Glu Lys Met Ala Asp Leu Ala Arg Met Glu Thr Val Leu Ser Glu
100 105 110

Leu Val Cys Ala Cys His Ala Arg Lys Gly Asn Val Ser Cys Pro Leu
115 120 125

Ile Ala Ser Leu Gln Gly Glu Ala Gly Leu Ala Arg Ser Ala Met Pro
130 135 140

<210> 3
<211> 321
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: chelon

<400> 3
atgacacact gcgaggaggc cagcagccctg gccgaacaca agctcaagga cgtgcgcgag 60
aagatggccg acttggcgcg catggaaacc gtgttgtctg aactcgtgtg cgcctgccat 120
gcacgaaagg ggaatgtttc ctgcccgttg atcgcgtcac tacagggatc ctcaggcacc 180
caactgcgagg aggccagcag cctggccgaa cacaagctca aggacgtgcg cgagaagatg 240
gccgacttgg cgccatgga aaccgtgctg tctgaactcg tgtgcgcctg ccatgcacga 300
aaggggaatg tttccctgccc g 321

<210> 4
<211> 117
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: chelon

<400> 4
Met Thr His Cys Glu Glu Ala Ser Ser Leu Ala Glu His Lys Leu Lys
1 5 10 15

Asp Val Arg Glu Lys Met Ala Asp Leu Ala Arg Met Glu Thr Val Leu
20 25 30

Ser Glu Leu Val Cys Ala Cys His Ala Arg Lys Gly Asn Val Ser Cys
35 40 45

Pro Leu Ile Ala Ser Leu Gln Gly Ser Ser Gly Thr His Cys Glu Glu
50 55 60

Ala Ser Ser Leu Ala Glu His Lys Leu Lys Asp Val Arg Glu Lys Met
65 70 75 80

Ala Asp Leu Ala Arg Met Glu Thr Val Leu Ser Glu Leu Val Cys Ala
85 90 95

Cys His Ala Arg Lys Gly Asn Val Ser Cys Pro Ser Ala Trp Ser His
100 105 110

Pro Gln Phe Glu Lys
115

<210> 5
<211> 117
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: chelon

<400> 5
Met Thr His Cys Glu Glu Val Ser Ser Leu Ala Glu His Lys Leu Lys
1 5 10 15

Asp Val Arg Glu Lys Met Ala Asp Leu Ala Arg Met Glu Thr Val Leu
20 25 30

Ser Glu Leu Val Cys Ala Cys His Ala Arg Lys Gly Asn Val Ser Cys
35 40 45

Pro Leu Ile Ala Ser Leu Gln Gly Ser Ser Gly Thr His Cys Glu Glu
50 55 60

Val Ser Ser Leu Ala Glu His Lys Leu Lys Asp Val Arg Glu Lys Met
65 70 75 80

Ala Asp Leu Ala Arg Met Glu Thr Val Leu Ser Glu Leu Val Cys Ala
85 90 95

Cys His Ala Arg Lys Gly Asn Val Ser Cys Pro Ser Ala Trp Ser His
100 105 110

Pro Gln Phe Glu Lys
115

<210> 6
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: chelon

<400> 6
Met Thr His Cys Glu Glu Ala Ser Ser Leu Val Glu His Lys Leu Lys
1 5 10 15

Asp Val Arg Glu Lys Thr Met Ala Asp Leu Ala Arg Met Glu Thr Val
20 25 30

Leu Ser Glu Leu Val Cys Ala Cys His Ala Arg Lys Gly Asn Val Ser
35 40 45

Cys Pro Leu Ile Ala Ser Leu Gln Gly Ser Ser Gly Thr His Cys Glu
50 55 60

Glu Ala Ser Ser Leu Val Glu His Lys Leu Lys Asp Val Arg Glu Lys
65 70 75 80

Met Ala Asp Leu Ala Arg Met Glu Thr Val Leu Ser Glu Leu Val Cys
85 90 95

Ala Cys His Ala Arg Lys Gly Asn Val Ser Cys Pro Ser Ala Trp Ser
100 105 110

His Pro Gln Phe Glu Lys
115

<210> 7
<211> 117
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: chelon

<400> 7
Met Thr His Cys Glu Glu Ala Ser Ser Leu Ala Glu His Lys Leu Lys
1 5 10 15

Asp Val Arg Glu Thr Met Ala Asp Leu Ala Arg Met Glu Thr Val Leu
20 25 30

Ser Glu Leu Val Cys Ala Cys His Ala Arg Lys Gly Asn Val Ser Cys
35 40 45

Pro Leu Ile Ala Ser Leu Gln Gly Ser Ser Gly Thr His Cys Glu Glu
50 55 60

Ala Ser Ser Leu Ala Glu His Lys Leu Lys Asp Val Arg Glu Thr Met
65 70 75 80

Ala Asp Leu Ala Arg Met Glu Thr Val Leu Ser Glu Leu Val Cys Ala
85 90 95

Cys His Ala Arg Lys Gly Asn Val Ser Cys Pro Ser Ala Trp Ser His
100 105 110

Pro Gln Phe Glu Lys
115

<210> 8
<211> 117
<212> PRT
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: chelon

<400> 8

Met Thr His Cys Glu Glu Ala Ser Ser Leu Ala Glu His Lys Leu Lys
1 5 10 15

Asp Val Arg Glu Gln Met Ala Asp Leu Ala Arg Met Glu Thr Val Leu
20 25 30

Ser Glu Leu Val Cys Ala Cys His Ala Arg Lys Gly Asn Val Ser Cys
35 40 45

Pro Leu Ile Ala Ser Leu Gln Gly Ser Ser Gly Thr His Cys Glu Glu
50 55 60

Ala Ser Ser Leu Ala Glu His Lys Leu Lys Asp Val Arg Glu Gln Met
65 70 75 80

Ala Asp Leu Ala Arg Met Glu Thr Val Leu Ser Glu Leu Val Cys Ala
85 90 95

Cys His Ala Arg Lys Gly Asn Val Ser Cys Pro Ser Ala Trp Ser His
100 105 110

Pro Gln Phe Glu Lys
115

<210> 9
<211> 117
<212> PRT
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: chelon

<400> 9

Met Thr His Cys Glu Glu Ala Ser Ser Leu Ala Glu His Lys Leu Lys
1 5 10 15

Asp Val Arg Glu Lys Met Ala Asp Leu Ala Arg Val Glu Thr Val Leu
20 25 30

Ser Glu Leu Val Cys Ala Cys His Ala Arg Lys Gly Asn Val Ser Cys
35 40 45

Pro Leu Ile Ala Ser Leu Gln Gly Ser Ser Gly Thr His Cys Glu Glu
50 55 60

Ala Ser Ser Leu Ala Glu His Lys Leu Lys Asp Val Arg Glu Lys Met
65 70 75 80

Ala Asp Leu Ala Arg Val Glu Thr Val Leu Ser Glu Leu Val Cys Ala
85 90 95

Cys His Ala Arg Lys Gly Asn Val Ser Cys Pro Ser Ala Trp Ser His
100 105 110

Pro Gln Phe Glu Lys
115

<210> 10

<211> 117

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: chelon

<400> 10

Met Thr His Cys Glu Glu Ala Ser Ser Leu Ala Glu His Lys Leu Lys
1 5 10 15

Asp Val Arg Glu Lys Met Ala Asp Leu Ala Arg Ile Glu Thr Val Leu
20 25 30

Ser Glu Leu Val Cys Ala Cys His Ala Arg Lys Gly Asn Val Ser Cys
35 40 45

Pro Leu Ile Ala Ser Leu Gln Gly Ser Ser Gly Thr His Cys Glu Glu
50 55 60

Ala Ser Ser Leu Ala Glu His Lys Leu Lys Asp Val Arg Glu Lys Met
65 70 75 80

Ala Asp Leu Ala Arg Ile Glu Thr Val Leu Ser Glu Leu Val Cys Ala
85 90 95

Cys His Ala Arg Lys Gly Asn Val Ser Cys Pro Ser Ala Trp Ser His
100 105 110

Pro Gln Phe Glu Lys
115

<210> 11

<211> 117

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: chelon

<400> 11

Met Thr His Cys Glu Glu Ala Ser Ser Leu Ala Glu His Lys Leu Lys
1 5 10 15

Asp Val Arg Glu Lys Met Ala Asp Leu Ala Arg Met Glu Thr Val Leu
20 25 30

Ser Glu Leu Val Cys Ala Cys His Ala Arg Lys Gly Asn Val Pro Cys
35 40 45

Pro Leu Ile Ala Ser Leu Gln Gly Ser Ser Gly Thr His Cys Glu Glu
50 55 60

Ala Ser Ser Leu Ala Glu His Lys Leu Lys Asp Val Arg Glu Lys Met
65 70 75 80

Ala Asp Leu Ala Arg Met Glu Thr Val Leu Ser Glu Leu Val Cys Ala
85 90 95

Cys His Ala Arg Lys Gly Asn Val Pro Cys Pro Ser Ala Trp Ser His
100 105 110

Pro Gln Phe Glu Lys
115

<210> 12

<211> 117

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: chelon

<400> 12

Met Thr His Cys Glu Glu Ala Ser Ser Leu Ala Glu His Lys Leu Lys
1 5 10 15

Asp Val Arg Glu Lys Met Ala Asp Leu Ala Arg Met Glu Thr Val Leu
20 25 30

Ser Glu Leu Val Cys Ala Cys His Ala Arg Lys Gly Asn Val Ser Cys
35 40 45

Pro Leu Ile Ala Leu Leu Gln Gly Ser Ser Gly Thr His Cys Glu Glu
50 55 60

Ala Ser Ser Leu Ala Glu His Lys Leu Lys Asp Val Arg Glu Lys Met
65 70 75 80

Ala Asp Leu Ala Arg Met Glu Thr Val Leu Ser Glu Leu Val Cys Ala
85 90 95

Cys His Ala Arg Lys Gly Asn Val Ser Cys Pro Ser Ala Trp Ser His
100 105 110

Pro Gln Phe Glu Lys
115

<210> 13
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: primer

<400> 13
tgcggcggtc tcaaattgaca cactgcgagg agg

33

<210> 14
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: primer

<400> 14
gcctgaggat cccttgttagtg acgcgatcaa cg

33

<210> 15
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: primer

<400> 15
ctacagggat cctcaggcac ccactgcgag

30

<210> 16
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: primer

<400> 16
ctgttagggtc tcggcgctcg ggcaggaaac att

33

<210> 17
<211> 354
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: sequence
encoding chelon

<400> 17
atgacacact gcgaggaggc cagcagcctg gccgaacaca agctcaagga cgtgcgcgag 60
aagatggccg acttggcgcg catggaaacc gtgcgtgtg aactcggtgtg cgactgcacat 120
gcacgaaaagg ggaatgttc ctgcccgttg atcgcgtcac tacagggatc ctcaggcacc 180
caactgcgagg aggccagcag cctggccaa cacaagctca aggacgtgcg cgagaagatg 240
gccgacttgg cgcgcatgga aaccgtgtg tctgaactcg tgtgcgcctg ccatgcacga 300
aaggggaaatg tttcctgccc gagcgcttgg agccacccgc agttcgaaaa ataa 354

<210> 18
<211> 509
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:sequence
encoding chelon flanked by sequences derived from
plasmid

<400> 18
ccatcgaatg gccagatgtat taattcctaa tttttgttga cactatcatt gatagaggtta 60
tttttaccact ccctatcagt gatagagaaa agtgaardtga atagtcgtat caaaaatcta 120
gataacgagg gcaaaaaatg acacactgcg aggaggccag cagcctggcc gaacacacaagc 180
tcaaggacgt ggcgcagaag atggccgact tggcgccat ggaaaccgtg ctgtctgaac 240
tcgtgtgcgc ctgcgcattgca cgaaagggga atgtttcctg cccgttgatc gcgtcactac 300
aggatcctc aggacacccac tgcgaggagg ccagcagcct ggccgaacac aagctcaagg 360
acgtgcgcga gaagatggcc gacttggcgc gcatggaaac cgtgcgtct gaactcggt 420
gcgcctgcga tgacgaaag gggaaatgttt cctgcccggag cgcttggagc cacccgcagt 480
tcgaaaaata ataagcttga cctgtgaag 509

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